

I CLAIM:

- 1        1. A control device for rotating a tube supporting a roller member to be wound  
2        onto or unwound from said tube, said device comprising at least an electric motor  
3        housed in said supporting tube and drive means comprising a reduction gear unit  
4        for transmitting the rotation from said motor to said supporting tube, wherein said  
5        electric motor comprises at least four poles.
- 1        2. A control device as claimed in claim 1 wherein said electric motor is a three-  
2        phase electric motor and said device incorporates an electronic unit for supplying  
3        electric power in a controlled manner to said motor.
- 1        3. A control device as claimed in claim 2, wherein said drive means comprises  
2        a single-stage mechanical reduction gear.
- 1        4. A control device as claimed in the claim 3, wherein said single stage mechan-  
2        ical reduction gear is a planocentric reduction gear comprising a ring gear provided  
3        with a given number of teeth, eccentrically and idly mounted on the output shaft of  
4        said motor and connected to the output shaft of said reduction gear, said gear wheel  
5        meshing with the internal teeth of a stationary ring gear, the number of said internal  
6        teeth being greater than said given number number of teeth on said ring gear by one  
7        tooth.
- 1        5. A control device as claimed in claim 1, wherein said motor is an asynchronous  
2        single phase motor.
- 1        6. A control device as claimed in claim 1, said control device further comprising  
2        an eddy-current brake of the flux deviation type, coaxial to and partially housed inside  
3        of said motor, and an angular position detector secured to a shaft extension of said  
4        motor, said angular position detector being an optical encoder.
- 1        7. A control device as claimed in the claim 2, wherein said electronic unit  
2        comprises a power stage in which a single- phase waveform is transformed through a  
3        rectifier and an inverter into a three-phase system for feeding said motor, said inverter  
4        being driven by a Pulse Width Modulated generator controlled by a microcontroller  
5        in accordance with an algorithm processing detected data, calculated data and stored  
6        data, said stored data being stored in a non- volatile memory unit, and in that said  
7        detected data comprise the ON/OFF state of the drive control signals, the feedback  
8        of the current signal on the motor and the feedback of the angular position of the  
9        motor shaft.
- 1        8. A control device as claimed in claim 7, wherein said calculated data comprise

2 the speed of the motor shaft, and that said stored data comprise the limit switch  
3 positions, the steady state speed and torque, the transient gradients.

1 9. A control device as claimed in claim 8, wherein it comprises a thermal  
2 protection switch, whose circuit is fed in parallel to the motor and directly controlled  
3 by said electronic unit.

1 10. A control device as claimed in claim 1, wherein said control device has  
2 an eddy current brake device of the flux deviation type comprising a mobile part  
3 consisting of an iron cylinder (51), to the end of which a disk is fastened for supporting  
4 an annular clutch member pushed against a stationary contrast surface by a spring  
5 seated in a seat formed in the rotor of said motor, said rotor having a short circuit  
6 ring.

1 11. A control device as claimed in claim 1, said control device further comprising  
2 an eddy-current brake of the flux deviation type, coaxial to and partially housed  
3 inside of said motor, and an angular position detector secured to a shaft extension of  
4 said motor, said angular position detector being a magnetical encoder.